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(54) [Title of the Invention] HYDRATED POWDER COSMETIC

(57) [Abstract]

[Constitution] Hydrated powder cosmetic containing the following components (a)-(d) and liquefying when applied with a patting motion.

- (a) Hydrophobized silica with a surface area of at least 80 m²/g
- (b) Fluorine compound-coated cosmetic powder
- (c) Oily component
- (d) Aqueous component

0.1-7 wt%
1-49.4 wt%
0.5-30 wt%
50-90 wt%

[Effect] Although the hydrated powder cosmetic of the invention is a powder modality, it liquefies when applied

with a patting motion, performing like a liquid-type cosmetic and providing a good cosmetic effect.

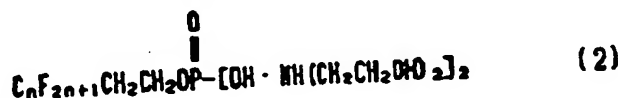
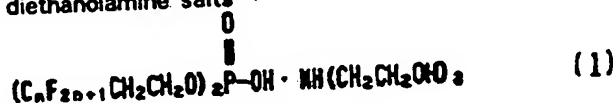
[Claims]

[Claim 1] Hydrated powder cosmetic characterized by the fact that it contains the following components (a)-(d) and that it liquefies when applied with a patting motion.

- | | | |
|-----|---|------------|
| (a) | Hydrophobized silica with a surface area of at least 80 m ² /g | 0.1-7 wt% |
| (b) | Fluorine compound-coated cosmetic powder | 1-49.4 wt% |
| (c) | Oily component | 0.5-30 wt% |
| (d) | Aqueous component | 50-90 wt% |

[Claim 2] Hydrated powder cosmetic in Claim 1, wherein the fluorine compound is at least one selected from the group of perfluoroalkyl phosphate diethanolamine salts

described by formulas (1) and (2) hereinbelow.
[Formula 1]



(where n denotes an integer ranging from 6 to 18.)

[Claim 3] Hydrated powder cosmetic in Claim 1, which is obtained by admixing a mixture of components (a) and (d) which have been mixed and powdered and a mixture of components (b) and (c) which have been mixed and powdered.

[Claim 4] Hydrated powder cosmetic in Claim 1, which is obtained by admixing component (a) and then component (d) into a mixture of components (b) and (c) which have been mixed and powdered.

[Detailed Description of the Invention]

[0001]

[Industrial Field of Application] The present invention relates to hydrated powder cosmetic. More specifically, it relates to hydrated powder cosmetic which, although it is a powder, liquefies when applied with a patting motion, displaying liquid-like characteristics and providing a good finish.

[0002]

[Prior Art] Powder makeups are popular with consumers because they are easy to use, but on dry skin or on normal skin in winter, such powder makeups do not afford a youthful, refreshing quality, appearing powdery and forming a film that lacks gloss, tone, and natural finish. A powder makeup that affords a cooling effect when blended with water has been disclosed (Japanese Unexamined Patent Application Kokai No. Sho 58-39609), but it was unsatisfactory, feeling heavy and powdery, adhering poorly, and causing unpleasant sensations

such as a dry, tight feeling. O/W liquid-type cosmetics were developed to overcome the drawbacks of the powder cosmetics mentioned hereinabove, but instead harbored drawbacks of their own such as a susceptibility to moisture, perspiration, and sebum, leading to a deterioration of the "made up" effect, stickiness, and the like.

[0003]

[Problems To Be Solved by the Invention] The object of the invention is to provide a cosmetic which possesses the advantages of both powder and O/W liquid-type cosmetics.

[0004]

[Means of Solving the Problems] The present inventors conducted intensive research aimed at solving these problems. As a result, they discovered that by powdering water with a specific hydrophobized silica and powdering an oily component with a hydrophobized and lipophobized powder cosmetic, a completely new modality of cosmetic, what could be termed a water-in-powder-type cosmetic, can be obtained and that, while this cosmetic is a powder, the water (the continuous phase) liquefies when the cosmetic is applied with a patting motion, thereby perfecting the invention.

[0005] Thus, the present invention provides a hydrated powder cosmetic characterized by the fact that it contains the following components (a)-(d) and that it liquefies when applied with a patting motion.

- | | | |
|-----|---|------------|
| (a) | Hydrophobized silica with a surface area of at least 80 m ² /g | 0.1-7 wt% |
| (b) | Fluorine compound-coated cosmetic powder | 1-49.4 wt% |
| (c) | Oily component | 0.5-30 wt% |
| (d) | Aqueous component | 50-90 wt% |

[0006] In the present invention, component (a), hydrophobized silica, is fine silica powder whose surface is covered with organosiloxane compounds, silicone compounds, or the like, examples including trimethylsiloxyated silica (Cabot Co., Cabosil TS-530,

surface area 325 m²/g), dimethylsiloxyated silica (Degussa Co., Aerosil R-972, surface area 110 ± 20 m²/g), octylsiloxyated silica (Degussa, Aerosil R-805, surface area 150 ± 25 m²/g), and silicone oil-treated silica (Degussa Co., Aerosil R-202, surface area 100 ± 20

m²/g). The surface area of these hydrophobized silicas must be at least 80 m²/g. If the surface area is less, the particle size of the hydrophobized silica will be too large, large amounts will not orient on the surface of water droplets, and it will not be possible to stably powder water.

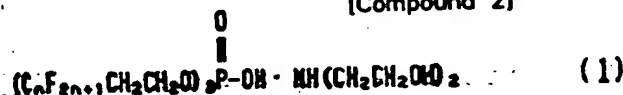
[0007] Examples of component (b) of the invention, cosmetic powder coated with a fluorine compound, include materials generally used in cosmetics such as talc, mica, kaolin, magnesium carbonate, calcium carbonate, aluminum silicate, magnesium silicate, calcium silicate,

titanium oxide, zinc oxide, red iron oxide, yellow iron oxide, black iron oxide, ultramarine blue, Prussian blue, tar pigments, natural pigments, micaceous titanium, micaceous titanium iron oxide, bismuth oxychloride, nylon powder, and silk powder.

[0008] Fluorine compounds used to render these powders hydrophobic and lipophobic are perfluoroalkyl phosphate diethanolamine salts (FAEP) described by the general formulas (1) and (2) hereinbelow. Asahi Guard AG530 made by Asahi Glass K.K. is an example.

[0009]

[Compound 2]



(where n is an integer ranging from 6 to 18.)

[0010] There are treatments for rendering powders hydrophobic besides using the FAEP treatment, examples including treatments oily substances such as silicone and high-melting-point waxes and various surface treatments using metallic soaps and the like. However, such treatments do not render powders lipophobic, and when the treated powders are mixed with the oily component, they are wetted, and they wet the hydrophobized silica, impairing their ability to powder the aqueous component. Powdering the aqueous component with inadequately treated powder requires massive amounts of hydrophobized silica. Although it is possible to do this, it is undesirable from a functional standpoint because the composition does not liquefy smoothly when applied. However, powders treated with these prior art methods and untreated powders can be used in mixtures with FAEP-treated cosmetic powders in amounts that do not compromise the effect of the invention.

[0011] FAEP treatment of cosmetic powder can be performed by, for example, adding water to cosmetic powder to form a slurry, then separately adding water to FAEP while stirring to make a 0.1-5 percent by weight emulsion, gradually adding the emulsion to the slurry, and then allowing the mixture to stand at ordinary or high temperature to break the emulsion and cover the surfaces of the powder particles with a continuous phase of FAEP. Washing, filtering, and drying the coated powder will yield hydrophobic and lipophobic cosmetic powder.

[0012] Any solid, semisolid, or liquid vegetable oil, animal oil, mineral oil, or synthetic oil, conventionally used in cosmetics, can be used as component (c) of the invention, the oily component. Concrete examples include fatty oils such as olive oil, jojoba oil, mink oil, and Japan wax; waxes such as beeswax and candelilla wax; hydrocarbons such as liquid paraffin, microcrystalline wax, and petroleum jelly; fatty acids such as stearic acid and oleic acid; higher alcohols such as cetyl alcohol; esters such as isopropyl myristate; lanolin derivatives such as isopropyl lanolin fatty acid ester and lanolin alcohol; and silicone compounds such as methyl polysiloxane and methyl

phenyl polysiloxane. The high-viscosity substances among these examples are preferred, and even more preferred is to use the above-listed oily components in combination with so-called oily gelling agents such as organic bentonite, starch fatty acid esters, and dimethyl polysiloxane polymers with a three-dimensional cross-linked structure. In addition, these oily components may be used singly or in combinations of two or more.

[0013] The mixing ratios for components (a)-(d) of the invention are given hereinbelow.

Component (a) is blended in amounts of 0.1-7 percent by weight (hereinbelow, simply percent), preferably 2-4 percent. If less is used, water cannot be sufficiently powdered, and the desired powder modality cannot be obtained. If more is used, large amounts of water can be powdered, but the composition will not liquefy, even when applied by a patting motion, and a liquid feel is not obtained.

Component (b) is blended in amounts of 1-49 percent, preferably 5-30 percent. If less is used, a cosmetic effect cannot be imparted to the applied film, and if more is used, a liquid feel cannot be obtained.

Component (c) is blended in amounts of 0.5-30 percent, preferably 2-15 percent. If less than 0.5 percent is used, when the cosmetic is applied to the skin, the hydrophobized silica absorbs perspiration and sebum, causing skin irritation and a dry, tight sensation and appearing powdery. If more than 30% is used, the hydrophobized silica is wetted and forms a continuous phase with the oily component, compromising the water-powdering effect. Accordingly, component (c), the oily component, should be used in amounts of 20-30 parts by weight per 100 parts of total combined powders (a) and (b).

Component (d), water, is blended in amounts of 50-90 percent, preferably 70-90 percent, although this varies depending on the mixing proportions for components (a) and (b). If less than 50% is used, a liquid feel is not obtained when the cosmetic is applied, and if more than 90% is used, the water cannot be powdered, which is

undesirable from a functional standpoint.

[0014] In addition to the essential components listed hereinabove, fragrances, preservatives, ultraviolet absorbers, antioxidants, beauty components, and the like may be added to the hydrated powder cosmetic of the invention in amounts that do not compromise the effect of the invention. In addition, water-soluble alcohols, glycol, and polyhydric alcohols such as glycerol, water-soluble polymers, and the like may be used in amounts that do not compromise the effect of the invention.

[0015] The hydrated powder cosmetic of the invention is manufactured by blending a mixture of components (a) and (d) which have been mixed and powdered and a mixture of components (b) and (c) which have been mixed and powdered or by blending component (a) and then component (d) into a mixture of components (b) and (c)

which have been mixed and powdered. In this operation, hydrophobized silica is adhered to the surface of water, creating hydrated powder, and oil is enclosed in cosmetic powder coated with a fluorine compound, creating oil-containing powder. The hydrated powder cosmetic of the invention is obtained by the copresence of hydrated powder and the oil-containing powder.

[0016]

[Working Examples] The present invention is described hereinbelow by means of working examples, but the invention is not limited by these examples.

[0017] Working Examples 1-3, Comparative Examples 1-3 (Face Powder) (Formulation)

[0018]

[Table 1]

	Working Example			Comparative Example		
	1	2	3	1	2	3
1. Titanium treated with Asahi Guard AG530 (5%)*	0.5	0.5	0.5	0.5	0.5	0.5
2. Talc treated with Asahi Guard AG530 (5%)*	12.0	12.0	12.0	12.0	12.0	12.0
3. Mica treated with Asahi Guard AG530 (5%)*	3.5	3.5	3.5	3.5	3.5	3.5
4. Pigment treated with Asahi Guard AG530 (5%)*	1.0	1.0	1.0	1.0	1.0	1.0
5. Trimethylsiloxyated silica	3.0	3.0	3.0	3.0	-	3.0
6. Dipentaerythritol fatty acid ester	5.0	-	-	35.0	5.0	-
7. Methyl polysiloxane (20 cs)	-	5.0	-	-	-	-
8. Starch fatty acid ester	-	-	0.5	-	-	-
9. Liquid paraffin	-	-	4.5	-	-	-
10. Purified water	75.0	75.0	75.0	45.0	78.0	80.0

*Manufactured in the manner described hereinabove, using Asahi Guard AG530.

[0019] (Manufacturing Method)

(A) Mix and powder Nos. 1-4.

(B) Melt Nos. 6-9 by heating, and then mix with (A). Mixing is accomplished by stirring.

(C) Mix Nos. 5 and 10 by stirring.

(D) Mix (B) and (C) and package in containers to obtain

face powder.

[0020] Working Example 4, Comparative Example 4 (Eye Shadow)

(Formulation)

[0021]

[Table 2]

	Working Example	Comparative Example
	4	4
1. Talc treated with Asahi Guard AG530 (5%)	8.0	8.0
2. Sericite treated with Asahi Guard AG530 (5%)	5.0	10.0
3. Micaceous titanium treated with Asahi Guard AG530 (5%)	5.0	10.0
4. Ultramarine blue treated with Asahi Guard AG530 (5%)	1.0	1.0
5. Red No. 226 treated with Asahi Guard AG530 (5%)	1.0	1.0
6. Dimethylsiloxyated silica	7.0	17.0
7. Glycerol trioctanoate	6.0	6.0
8. Organic bentonite	2.0	2.0
9. Purified water	65.0	45.0

[0022] (Manufacturing Method) Manufactured in accordance with Working Example 1.

[0023] Working Example 5, Comparative Examples 5 and 6 (Rouge)

(Formulation)

[0024]

[Table 3]

	Working Example 5	Comparative Example 5	Comparative Example 6
	10.	—	—
1. Talc treated with Asahi Guard AG530 (5%)	5.0	—	—
2. Sericite treated with Asahi Guard AG530 (5%)	—	10.0	—
3. Talc treated with methyl hydrogen polysiloxane (2%)	—	5.0	—
4. Sericite treated with methyl hydrogen polysiloxane (2%)	—	—	10.0
5. Untreated talc	—	—	5.0
6. Untreated sericite	1.0	1.0	—
7. Red iron oxide treated with methyl hydrogen polysiloxane (1.5%)	0.5	0.5	—
8. Yellow iron oxide treated with methyl hydrogen polysiloxane (1.5%)	—	—	1.0
9. Untreated red iron oxide	—	—	0.5
10. Untreated yellow iron oxide	1.5	1.5	1.5
11. Dimethylsiloxylated silica	2.5	2.5	2.5
12. Trimethylsiloxylated silica	0.5	0.5	0.5
13. Paraffin wax	3.0	3.0	3.0
14. Squalane	1.5	1.5	1.5
15. 1,3-Butylene glycol	74.5	74.5	74.5
16. Purified water			

[0025] (Manufacturing Method)

- (A) Mix and Nos. 1-10 and reduce to powder.
(B) Melt Nos. 13 and 14 by heating and then mix with (A). Mixing is accomplished by stirring.
(C) Mix Nos. 11 and 12 into (B).
(D) Mix Nos. 15 and 16 into (C) by stirring and package in containers to obtain rouge.

[0026] Working Examples 6-8, Comparative Examples 7 and 8 (Powder Foundation)
(Formulation)
[0027]
[Table 4]

	Working Example 6	Comparative Example 7	Working Example 7	Comparative Example 8	Working Example 8
	7.0	7.0	7.0	7.0	7.0
1. Titanium treated with Asahi Guard AG530 (5%)	8.0	8.0	8.0	8.0	8.0
2. Talc treated with Asahi Guard AG530 (5%)	5.0	5.0	5.0	5.0	5.0
3. Sericite treated with Asahi Guard AG530 (5%)	1.0	1.0	1.0	1.0	1.0
4. Pigment treated with Asahi Guard AG530 (5%)	3.0	—	—	—	—
5. Trimethylsiloxylated silica	—	3.0	—	—	—
6. Silica without surface treatment ^{*-1}	—	—	3.0	—	—
7. Octylsiloxylated silica	—	—	—	3.0	—
8. Silica without surface treatment ^{*-2}	—	—	—	—	3.0
9. Silicone oil-treated silica	3.0	3.0	3.0	3.0	3.0
10. Petroleum jelly	73.0	73.0	73.0	73.0	73.0
11. Purified water					

- *-1 Surface area: $50 \pm 15 \text{ m}^2/\text{g}$
*-2 Surface area: $380 \pm 30 \text{ m}^2/\text{g}$

[0028] (Manufacturing Method) Manufactured in accordance with Working Example 5.
[0029] Working Example 9 (Emollient Powder)
(Formulation)

[0030]
[Table 5]

	(Wt%)
	Comparative Example 9
1. Sericite treated with Asahi Guard AG530 (5%)	3.0
2. Anhydrous silica treated with methyl hydrogen polysiloxane (2%)	5.0
3. Trimethylsiloxyated silica	5.0
4. Glycerol fatty acid ester	5.0
5. Microcrystalline wax	5.0
6. Poly(ethylene glycol) (Molecular weight: 20,000)	4.0
7. Glycerol	5.0
8. Crosslinked dimethyl polysiloxane polymer	1.0
9. Methyl polysiloxane	2.0
10. Purified water	65.0

[0031] (Manufacturing Method) Manufactured in accordance with Working Example 1.

20 women. The results are shown in Table 6.
[0033]
[Table 6]

[0032] Test 1
The cosmetics obtained in Working Examples 1-9 and Comparative Examples 1-8 were wear-tested by a panel of

(Wt%)

	Working Example									Comparative Example							
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8
Powderiness	●	●	●	○	●	●	○	●	○	x	x	●	●	x	x	x	x
Liquidity	●	●	●	●	○	●	●	○	●	x	x	●	x	○	△	△	x
Not powdery	●	●	●	●	●	●	●	●	○	x	△	○	x	△	x	△	△
Cool	○	●	●	●	●	●	●	○	●	x	△	x	x	△	△	△	x
Moist	●	○	●	●	●	●	●	○	●	△	△	x	x	△	△	△	x
Not dry and tight	●	●	●	●	●	●	●	○	●	x	x	x	x	x	x	x	x
Overall evaluation	●	●	●	●	●	●	●	○	●	x	x	x	x	x	x	x	x

(Note) ●: Good. ○: Fair. △: Poor. x: Extremely poor.

[0034]
[Effect of the Invention] As described in detail hereinabove, the hydrated powder cosmetic of the invention is a completely new type of cosmetic which, although it is a powder, liquefies when applied with a

patting motion, forming a liquid-like film on the skin. The cosmetic has excellent characteristics such as providing natural gloss and tone and forming a tightly fitting, uniform film that shows showing little deterioration.

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